

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-3, and 5-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor or carrying out his invention.

Claims 1-3 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added subject matter of "wherein said wireless unlicensed band radio will still operate in the event of a failure in either said primary RF port or said secondary RF port", "continuous azimuth angular", and "mounted perpendicularly to an antenna based" to claims 1-3 and 14 is considered new matter because the specification as original filed does not provide support for those limitations as mentioned above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al. (US Pub. No.: 2003/0122719, hereinafter, "Nilsson) in view of Dean (Patent No.: 6,091,970) and further in view of Frazita (US Patent No.: 4,837,580).

Regarding claim 1, Nilsson wireless unlicensed band radio system for use in maritime applications, said system comprising at least three sector antennas configured so as to provide continuous coverage in 360 degrees of rotation (see figure 2, antennas 20, 22, 24, sector 1 is defined in the region between antennas 20 and 22, sector 2 is defined in the region between antennas 22 and 24, sector 3 is defined in the region

between antennas 24 and 20. Antennas 20, 22, 24 are cover 360 degrees, [0046-0048), said antennas each being connected to a wireless fidelity radio (read on transceiver 16 of figure 3) and serving to transmit and receive information from and to said radio (see 0046-0048).

It should be noticed that Nilsson fails to teach a primary RF port and a secondary RF port, and further including a passive two-way power divider incorporated in said primary RF port. However, Dean teaches a primary RF port (see figure 3, transmitter port 212) and a secondary RF port (see figure 3, main receive port 214), and further including a passive two-way power divider incorporated in said primary RF port (see figure 3, power splitter 240, col.6, ln.1-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Dean into view of Nilsson in order to increase the range of a relatively low capacity base station while keeping infrastructure cost to a minimum as suggested by Dean at col.2, ln.34-36.

Nilsson and Dean, in combination, fails to teach microwave landing system will still operate in the event of a failure in either said primary RF port or said secondary RF port. However, Frazita teaches microwave landing system will still operate in the event of a failure in either said primary RF port or said secondary RF port (see figure 1, col.4, ln.1-13, it is clearly seen that one of the switch is failure only affect the port that connect to that switch, but not to the other ports and the microwave landing system is still working).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazita into view of Nilsson and Dean in order to minimize the effect of switch failures as suggest by Frazita at col.1, ln.48-50.

Regarding claim 5, Dean further teaches two of said antennas are connected to said power divider and the third of said antennas is connected to said secondary RF port, wherein said power divider and said secondary RF port each provide driving signals to said antennas (see figure 3, antennas 152, 154, 156, transmit port 212, main receive port 214, splitter 240, col.6, ln.1-19).

5. Claims 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al. (US Pub. No.: 2003/0122719, hereinafter, “Nilsson) in view of Dean (Patent No.: 6,091,970) and further in view of Frazita (US Patent No.: 4,837,580) as applied to claim 1 above, and further in view of Drabeck et al. (US Patent No.: 6,549,529, hereinafter, “Drabeck”).

Regarding claim 2, Nilsson, Dean, and Frazita, in combination, fails to teach each of said sector antennas provides a minimum of 120 degrees of continuous azimuth angular coverage. However, Drabeck teaches each of said sector antennas provides a minimum of 120 degrees of continuous azimuth angular coverage (see col.4, ln.14-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Drabeck into view of Nilsson, Dean, and Frazita in order to provide a good coverage.

Regarding claim 6, Dean further teaches each of said antennas is connected to said wireless unlicensed band radio by a separate amplification path (see figure 2, each antennas 152 is included transmitter and receiver, 154 is included transmitter and receiver, 156 is included transmitter and receiver, path with amplifier 262, 264, 266).

Regarding claim 7, Dean further teaches a solid state transmit and receive amplification unit incorporated in each of said amplification paths (see figure 2, each antennas 152 is included transmitter and receiver, 154 is included transmitter and receiver, 156 is included transmitter and receiver, path with amplifier 262, 264, 266).

Regarding claim 8, Dean further teaches said transmit and receive amplification units comprise a transmitter, a receiver and a solid state switch for selecting the operation of said transmitter and said receiver (see figure 3, duplexer 232 is included switch for switching between the transmission and reception, amplifier 262, 264, 266).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al. (US Pub. No.: 2003/0122719, hereinafter, "Nilsson) in view of Dean (Patent No.: 6,091,970) and further in view of Frazita (US Patent No.: 4,837,580) and Drabeck et al. (US Patent No.: 6,549,529, hereinafter, "Drabeck") as applied to claim 1 above, and further in view of Gaudette et al. (US Pub. No.: 2004/0150580, hereinafter, "Gaudette").

Regarding claim 3, Nilsson further teaches each of said antennas are configured at a 120 degree angular separation from the other two antennas (see figure 2 and explanation in claim 1). Nilsson, Dean, Frazita, and Drabeck, in combination, fails

to teach the antenna are mounted perpendicularly to an antenna based. However, Gaudette teaches the antenna are mounted perpendicularly to an antenna based (see figure 1, [0036], antenna 14, 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Gaudette into view of Nilsson, Dean, Frazita, and Drabeck in order to provide a good coverage.

7. Claims 9-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al. (US Pub. No.: 2003/0122719, hereinafter, "Nilsson) in view of Dean (Patent No.: 6,091,970) and further in view of Frazita (US Patent No.: 4,837,580) and Drabeck et al. (US Patent No.: 6,549,529, hereinafter, "Drabeck") as applied to claim 1 above, and further in view of Shields et al. (U.S. Patent No.: 7,043,280, hereinafter, "Shields").

Regarding claim 9, Nilsson, Dean, Frazita, and Drabeck, in combination, fails to teach a voltage converter to supply the proper bias condition for said wireless radio. However, Shields teaches voltage converter to supply the proper bias condition for said wireless radio (see figure 1, transformer 102 convert AC to DC to provide the DC power to the device).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shields into view of Nilsson, Dean, Frazita, and Drabeck in order to provide the low voltage to the subscriber station.

Regarding claim 10, Shields further teaches power distribution circuitry, said circuitry directing DC power to said amplification units and said voltage converter (see col.6, ln.20-29, figure 1, transformer 102 convert AC to DC to provide the DC power to the device).

Regarding claim 11, Shields further teaches said sector antennas, said amplification units, said wireless fidelity radio, and said power distribution circuitry are all enclosed within an environmentally sealed radome (see figure 2, col.4, ln.55-65).

Regarding claim 13, Shields further teaches said DC power is distributed to said amplification units and said voltage converter by a single pair of shielded 12 gauge wire (see figure 1, power cable).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al. (US Pub. No.: 2003/0122719, hereinafter, "Nilsson) in view of Dean (Patent No.: 6,091,970) and further in view of Frazita (US Patent No.: 4,837,580) and Drabeck et al. (US Patent No.: 6,549,529, hereinafter, "Drabeck") and Shields et al. (U.S. Patent No.: 7,043,280, hereinafter, "Shields") as applied to claim 1 above, and further in view of Shpak (US Patent No.: 7,177,661).

Regarding claim 12, Nilsson, Dean, Frazita, Drabeck, and Shields, in combination, fails to teach unlicensed band radio is connected to a network interface by means of two sets of CAT-5 cable. However, Shpak teaches unlicensed band radio is connected to a network interface by means of two sets of CAT-5 cable (see figure 5, col.5, ln.60-67, cat-5 cable 86).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shpak into view of Nilsson, Dean, Frazita, Drabeck, and Shields in order to provide a high signal integrity and high speed data transmission.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/TUAN A PHAM/
Examiner, Art Unit 2618

Tuan Pham